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## Using the Game Keep Talking and Nobody Explodes to Practice Intensive Reading

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### Abstract

Previous studies in Game-Based Language Learning (GBLL) suggest that there is a strong need to establish game-based language learning pedagogy through development of GBLL activities and assessment instruments (Chik, 2012, Reinhardt and Sykes, 2012). In the study presented here the hybrid digital-analog communication game “Keep Talking and Nobody Explodes” was used in five second-year reading courses to give non-English majors intensive reading practice with the goal of assessing the feasibility of incorporating GBLL activities in the course, prototyping an assessment tool for the task, and gauging student perceptions of a GBLL activity. Students played the game in teams in two successive classes and were assessed on their ability to advance in the game. Three weeks after the activity students were given a survey asking them to compare learning through the game to another task-based learning activity. Findings suggest that using the game is practical and that students saw learning through the game as both more engaging and more effective than a comparable activity.

### I. Introduction

Research on game-based language learning has a substantial and growing body of work indicating digital games provide affordances and conditions in which language learning can be enhanced (Reinders and Wattana, 2011, Reinhardt and

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Sykes, 2012). In particular, games such as “Keep Talking and Nobody Explodes” offer opportunities for information-gap tasks and task-based learning, both of which are recognized as powerful methodologies for eliciting authentic communication (Ellis, 2009, Willis and Willis, 2007). Digital games have also been shown to have a positive influence on the willingness to communicate (Reinders and Wattana, 2014, 2015).

Unfortunately the difficulty of navigating the technological, linguistic, and thematic constraints of unmodified commercial games has resulted in studies that have frequently been confined to small groups of learners (Chik, 2012, Swier, 2014) and studies using games that are not appropriate for general education classes (Peterson, 2017, Rankin and Shute, 2010, Swier and Peterson, 2018). In light of these problems with previous studies of commercial games “Keep Talking and Nobody Explodes” was chosen for its ease of use, short length of play, and perceived easy incorporation into the curriculum. While the theme of bomb defusal does not itself align with daily conversation or reading needs, the technical manual features language appropriate for science and technology majors and the language competency demands presented by the game don’t exceed the abilities of second-year non-English majors.

## **II. Background**

Keep talking and Nobody Explodes is a commercial game in which players work cooperatively to defuse a simulated bomb within a short time limit. The game features a hybrid digital-analog system in which one player, called the Defuser, engages with the bomb using a computer or tablet and the remaining players, called Experts, use paper manuals to decipher abstruse defusal instructions and relay them to the Defuser (See Appendix 1 and 2). During the game the Defuser is not allowed to look at the manual, and the Experts are not allowed to look at the bomb, creating a natural information-gap activity in which the Defuser describes a feature of the bomb, the Experts race to identify and comprehend the instructions regarding that feature, ask the Defuser questions to narrow the range of possible actions to take, and eventually ascertain the correct sequence of actions to defuse that feature. This is done repeatedly within time limit (five or six minutes), and if all of the actions are performed correctly before the timer runs out, the bomb is defused. If not, the bomb explodes. As the name implies, the players need to exchange information rapidly and continuously in order to succeed.

The bomb is represented on the screen by a three-dimensional object consisting of a variety of distinct modules, each of which must be defused within the time limit. Each module presents a different task, such as determining which wire to cut

based on color, order, and the bomb configuration; describing oddly-shaped symbols and determining the correct order to press them in; or identifying the layout of a maze and navigating it blindly. Each module type has a multitude of possible configurations and each bomb after the tutorial features a random selection of modules, making each playthrough different. The manual is composed of separate instructions for each of the modules, and is written in such a way as to confound easy analysis.

The game features a number of elements that make it an engaging challenge not found in most EFL classroom activities, such as immediate feedback, intrinsic time pressure, authentic information gaps, and unusual problem-solving opportunities.

While the game requires players to exchange information orally and is perceived to be an oral communication game, it was chosen for reading classes because for English language learners the primary skills necessary for success are scanning, interpreting the instructions, asking questions based on information found in the text, and making decisions based on accurate comprehension. While high oral fluency is a benefit, neither high fluency nor complete grammatical accuracy are necessary for successful completion of the game.

### **III. Methodology**

#### **1. Participants**

The participants in the study were 109 low proficiency second-year science and technology majors at a Japanese university enrolled in a required reading course. None of the participants had had prior experience with the game Keep Talking and Nobody Explodes.

#### **2. Materials**

In preparation for the study the instructor adapted the Experts' manual for English-language learners, loaded the game onto six laptops, and prepared worksheets and survey questions. The original manual is written to be challenging for native English speakers to parse, and while the vocabulary and sentence structure is not insurmountable, the combined challenge that the Experts face of deconstructing the text, discussing the meaning, and relaying it to the Defuser under tight time constraints is considerable. In light of this the instructor prepared a graded version of the manual following Rankin and Shute's (2010) model in order to providing scaffolding for. Rather making the original text more lucid, additional instructions were added to provide recommended defusal procedures, increasing the amount of reading required and reducing the potential for frustration while

maintaining the original spirit of the game. Several vocabulary items were changed and a vocabulary gloss was included.

The game settings were modified to remove several modules that required focused listening because these were deemed impractical for use in a noisy classroom environment. Three worksheets were prepared, one to introduce vocabulary and useful phrases, and two for teams to use to record their progress in the game.

Data was collected using an eleven-item survey asking students to compare their impressions of the game to other class activities. The survey included nine multiple choice questions and two open-ended questions, of which three questions specifically comparing “Keep Talking and Nobody Explodes” to a similar task-based learning activity will be discussed here. The survey was translated into Japanese to ensure student comprehension. Ninety-eight students responded to the survey; after removing responses from students who reported being absent for one or more classes a total of 87 responses were recorded. Responses to multiple-choice items in which the student selected more than one option were also removed. The multiple-choice questions addressed in this article are:

1. Last week we did an activity called “Paragraph Building” in which your team recreated a paragraph about interviewing techniques. This activity was similar to “Keep Talking” because you had hidden information that you had to read and explain to your partners. Please compare this activity to “Keep Talking and Nobody Explodes.” Engagement: Which one was more engaging?
2. Last week we did an activity called “Paragraph Building” in which your team recreated a paragraph about interviewing techniques. This activity was similar to “Keep Talking” because you had hidden information that you had to read and explain to your partners. Please compare this activity to “Keep Talking and Nobody Explodes.” Reading Skills: Which one helped you improve your reading skills more?
3. Last week we did an activity called “Paragraph Building” in which your team recreated a paragraph about interviewing techniques. This activity was similar to “Keep Talking” because you had hidden information that you had to read and explain to your partners. Please compare this activity to “Keep Talking and Nobody Explodes.” Speaking Skills: Which one improved your speaking skills more?

### **3. Procedure**

The activity was conducted in four successive classes over the course of four weeks. The game was played in the first two classes, followed by the text-

reconstruction activity in the third class and a non-task-based learning activity in the fourth. Students were given the survey in the fifth class. Prior to the first class the game was introduced, the language-learning objectives were explained, and the students were assigned homework to be completed for the first class consisting of skimming the first five pages of the manual, learning 20 vocabulary items, and reviewing 20 useful phrases.

In the first class students were given a 20 question quiz on the vocabulary and phrases, briefly shown feedback on their quiz performance, then allowed to self-sort into teams of four or five. Students were told that their teams would be assessed on the number of bombs defused and the difficulty of bombs as determined by the level reached in the game and were asked to record their progress on a worksheet. Each team member was required to play as the defuser for each bomb type before the team could progress to the next level. Students were also instructed that Japanese use while playing the game would result in a penalty of ten points per infraction, but that Japanese use in between games was allowed. The assessment type was “class participation,” meaning that while the students would be evaluated on their performance, it was a low-stakes activity that amounted to only 2% of their total semester grade for the two classes. Finally the instructor showed the students how to start the game on their team’s computer and ensured that the students sat such that only the defuser could see the screen.

For the remainder of the first class, approximately 50 minutes, the teams set about defusing bombs while the instructor circulated throughout the room, offering advice, encouraging and occasionally assisting weaker teams, and monitoring for Japanese usage. The instructor also verified when a team had completed a level and advanced the game manually. At the end of the class the students shut down the computers, submitted their worksheets, and were assigned homework for the next section, which was to review the vocabulary and phrases again and skim the remaining 8 pages of the manual that contained new modules.

At the beginning of the second class students were shown how the difficulty of the game would increase and were instructed to first play to tutorial level in order to review the procedures and familiarize students who had been absent with the game. Students again self-sorted into teams of four or five and had the remaining 75 minutes of class to advance as far as possible in the game following the same rubric used in the first class. Finally, the instructor encouraged the teams to reach the highest possible level they could.

During the two classes following the GBLL activity the instructor used standard EFL class activities in conjunction with the course text, an information gap text-reconstruction activity in which teams raced to assemble a paragraph and an individual paraphrasing activity. In the third class following the GBLL activity

students completed a nine-question survey which asked them to compare the GBL activity to the other course activities.

## **IV. Results**

### **1. Impressions of Feasibility and Student Performance**

In first session the majority of the students were highly engaged in the activity and worked enthusiastically to overcome the challenges that bombs presented. Teams rarely took breaks between rounds of the game and when they did it was to analyze language in the manual they didn't understand or explain some facet of the game to an underperforming team member. Students analyzed the manual text to understand modules they couldn't defuse, debated the best methods for solving the puzzles, and celebrated their successes boisterously. Less-enthusiastic teams worked continuously but expressed high levels of frustration when unable to defuse bombs. Of the 23 teams in the first session, only two failed to complete the minimum required tasks, and only two teams were penalized for Japanese use. Seven teams advanced farther than the instructor had planned for and began levels for which they had not prepared. There were no significant problems related to operating the computers, understanding the activity, or performing the tasks.

In the second session all 24 teams improved their performance, defusing nearly twice as many bombs. Enthusiasm levels remained high: teams who embraced the challenge in the first session returned prepared and eager for new modules, and several students who were on underperforming teams informed the instructor that they worked harder on the homework in preparation for the second session.

The allotted time of two 90-minute sessions was long enough for students to become confident with the language and strategies needed for success. In the second class, however, it became clear that high-performing teams frequently relayed information through shorthand when defusing modules they were confident with. That is, instead of asking "what color are the wires," as was the norm at the outset, Experts asked "wires?" This tendency to forego grammar conventions and reduce utterances to the minimum viable length has been reported in other studies of game-based learning that rely on time pressure (York and Dehaan, 2018).

### **2. Survey results**

Three questions were asked comparing the game-based activity to a text construction activity called "Paragraph Building." Survey results showed that the majority of the students rated the game-based activity more engaging and more effective than the similar task-based activity. The text-construction activity was ranked almost equal in terms of improving reading skills, but the game was ranked

higher for engagement and improving speaking skills.

**Table 1 Comparing Keep Talking to Paragraph Building**

Questions	Mean	SD
Keep Talking was more engaging. (N = 80)	3.8	1.0
Keep Talking was better for improving reading skills. (N = 84)	3.3	1.3
Keep Talking was better for improving speaking skills.	4.0	1.0

## V. Discussion

Aside from the work of rewriting the Expert manual, incorporating the game into the reading curriculum was relatively straightforward. Students showed a high level of enthusiasm during the two classes when the game was played, and survey findings show that the students had a positive attitude toward the game-based activity and perceived it to be more effective than the similar non-game activity.

## VI. Conclusion

The findings show that the students had a positive attitude toward the game-based activity and perceived it to be more effective than a similar non-game activity. Given the levels of enthusiasm that were apparent during gameplay and the relative ease of use, it appears that Keep Talking and Nobody explodes could be used as a component of reading courses.

## VII. Limitations

This study investigated student perceptions about a game-based activity but not the effect of the activity on their ability, and as such it's not possible to assess whether students benefitted from the activity more than they did from other activities. Because of the nature of the activity and the language necessary to complete it, direct comparisons between this game-based activity and other tasks as discrete activities remain limited. In the future it may be possible to modify the game to make the modules more similar to standard task-based language learning activities.

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**Appendix 1: Keep Talking and Nobody Explodes Sample Bomb**

Screenshot of the front of a level 1 bomb, showing, in clockwise order from the top, an used module space, the Countdown Timer, the Wires Module, the Symbols Module, the Button Module, and a second unused module space.

## Appendix 2: Keep Talking and Nobody Explodes Sample Manual Page

Keep Talking and Nobody Explodes v. 1

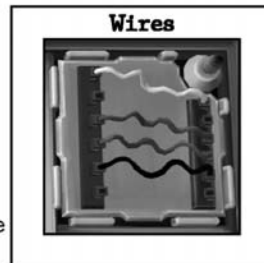
Wires

### The Wires Module

1. A wire module can have 3-6 wires.
2. Cut the **ONE** correct wire that stops the module.
3. The top wire is the first wire.

**Defuser:** Tell the Experts how many wires you have and the wires' colors.

**Experts:** Read the instructions below and tell the Defuser which wire to cut.



#### **3 wires:**

If there are no red wires, cut the second wire.

Otherwise, if the last wire is white, cut the last wire.

Otherwise, if there is more than one blue wire, cut the last blue wire.

Otherwise, cut the last wire.

#### **4 wires:**

If there is more than one red wire and the last digit of the serial number is odd, cut the last red wire.

Otherwise, if the last wire is yellow and there are no red wires, cut the first wire.

Otherwise, if there is exactly one blue wire, cut the first wire.

Otherwise, if there is more than one yellow wire, cut the last wire.

Otherwise, cut the second wire.

#### **5 wires:**

If the last wire is black and the last digit of the serial number is odd, cut the fourth wire.

Otherwise, if there is exactly one red wire and there is more than one yellow wire, cut the first wire.

Otherwise, if there are no black wires, cut the second wire.

Otherwise, cut the first wire.

#### **6 wires:**

If there are no yellow wires and the last digit of the serial number is odd, cut the third wire.

Otherwise, if there is exactly one yellow wire and there is more than one white wire, cut the fourth wire.

Otherwise, if there are no red wires, cut the last wire.

Otherwise, cut the fourth wire.

Screenshot of the Keep Talking and Nobody Explodes EFL Version manual page providing instructions for defusing the Wires Module. This page was adapted to clarify description questions 1-3 and insert instructions for the Defuser and Experts.